TOSHIBA 4200*FA* XT UPS

Installation Planning Guide for 15-80kVA UPS

Standard System: 480v Input, 208/120V Output

General Mechanical Information

UPS kVA/ kW Rating	Dimensions (W x D x H) Inches	Weight Lbs.	Approximate Full-Load Heat Loss kBTU's / Hr
15 kVA/12 kW	20 x 36.25 x 59.85	1,260	5.7
25 kVA/ 20 kW	20 x 36.25 x 59.85	1,275	7.6
30 kVA/ 24 kW	20 x 36.25 x 59.85	1,275	9.1
50 kVA/ 40 kW	35.59 x 38.19 x 59.39	2,523	17.7
80 kVA / 64 kW	44 x 31 x 74	2,200	40.0

Primary AC Input (480V 3-Phase / 3-Wire)

Maximum Input Power Demand			Suggested External Overcurrent Protection	Suggested Minimum Feeder Wire Size Per Phase	Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit
kVA	PF	Amps	Amps	AWG or kcmil at 75º C Temp. Rating	Feet
15	>0.97	20	25 AT	(1) x 10	480
25	>0.97	33.4	40 AT	(1) x 8	480
30	>0.97	40	45 AT	(1) x 8	480
50	>0.97	66.8	75 AT	(1) x 4	480
80	>0.98	105.9	125 AT	(1) x 1	480

Optional Alternate AC Input (208/120V 3-Phase / 4-Wire)

Maximum Input Power Demand		Suggested External Overcurrent Protection	Suggested Minimum Feeder Wire Size Per Phase / Neutral	Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit
kVA	Amps	Amps	AWG at 75º C Temp. Rating	Feet
15	41.6	60 AT	(1) x 8 / (1) x 6	480
25	69.4	90 AT	(1) x 4 / (1) x 2	480
30	83.3	110 AT	(1) x 3 / (1) x 1	480
50	138.8	175 AT	(1) x 1/0 / (1) x 4/0	480
80	222.1	300 AT	(1) x 4/0 / (1) x 400	480

Battery Input (288VDC Nominal)

Battery Capacity Required for Full Load Output		Maximum Discharge at Full Load Output	Suggested External Overcurrent Protection	Suggested Minimum Feeder Wire Size Per Phase	Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit
	kWB	Amps DC	Amps	AWG or kcmil at 75º C Temp. Rating	Feet
15	13.33	61.7	90 AT	(1) x 6	70
25	22.22	102.8	125 AT	(1) x 2	70
30	26.67	123.0	175 AT	(1) x 1	70
50	44.44	205.7	225 AT	(1) x 4/0	70
80	71.11	329.2	400 AT	(2) x 3/0	70

AC Output (208/120V 3-Phase / 4-Wire)

Rated Output Power			Suggested External Overcurrent Protection	Suggested Minimum Feeder Wire Size Per Phase / Neutral	Suggested Maximum Feeder Length For Min. Wire Size in Steel Conduit
kVA	PF	Amps	Amps	AWG or kcmil at 75º C Temp. Rating	Feet
15	0.8	41.6	60 AT	(1) x 8 / (1) x 6	380
25	0.8	69.4	90 AT	(1) x 4 / (1) x 2	380
30	0.8	83.3	110 AT	(1) x 3 / (1) x 1	380
50	0.8	138.8	175 AT	(1) x 1/0 / (1) x 4/0	380
80	0.8	222.1	300 AT	(1) x 4/0 / (1) x 400	380

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Important Notes:

1. Maximum Current required at Primary AC Input based on full load output and maximum battery charging current.
2. Output load conductors are to be installed in separate conduit from input conductors.
3. Control wires and power wires are to be installed in separate conduits.
4. Recommended AC input and output overcurrent protection based on continuous full load current per NEC.
5. Wiring shall comply with all applicable national and local electrical codes.
6. Grounding conductors to be sized per NEC Article 250-122. Neutral conductors to be sized per NEC Article 310.15.
 - Primary AC Input: 3ϕ, 4-wire + ground.
 - AC Output: 3ϕ, 4-wire + ground.
 - DC Input: 2-wire (Positive/Negative) + ground.
7. Nominal battery voltage based on the use of VRLA type batteries (2.0 volts / cell nominal).
8. Maximum battery discharge current based on lowest permissible discharge voltage of 1.6 VPC.
9. DC wires should be sized to allow not more than a 2-volt drop at maximum discharge current.
10. Weights include internal batteries.
11. Sizing calculations based on the following assumptions:
 - Not more than 3 current-carrying conductors installed in steel conduit in ambient temperature of 30 degrees C.
 - Temperature rating of conductors and terminals: 90 deg. C.
 - Feeder distance calculations based on NEC Tables 8 and 9 data, allowing for 2% AC voltage drop.
 - Reference: 2002 NEC Handbook. Consult latest edition of applicable national and local codes for possible variations.
12. Ratings of wires and overcurrent devices are suggested minimums. Consult with a registered Professional Engineer within your local area for proper size selections.

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